HyperStat Online Contents
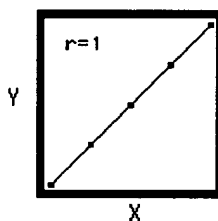
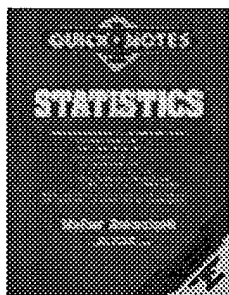## Pearson's correlation (1 of 3)

The correlation between two variables reflects the degree to which the variables are related. The most common measure of correlation is the Pearson Product Moment Correlation (called Pearson's correlation for short). When measured in a population the Pearson Product Moment correlation is designated by the Greek letter rho (ρ). When computed in a sample, it is designated by the letter "r" and is sometimes called "Pearson's r." Pearson's correlation reflects the degree of linear relationship between two variables. It ranges from +1 to -1. A correlation of +1 means that there is a perfect positive linear relationship between variables. The scatterplot shown on this page depicts such a relationship. It is a positive relationship because high scores on the X-axis are associated with high scores on the Y-axis.

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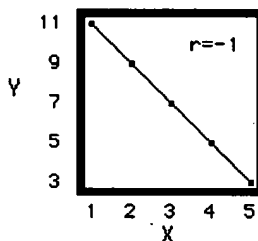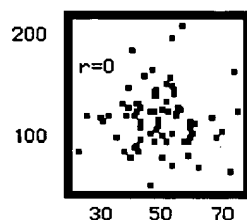
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Pearson's correlation (2 of 3)

A correlation of -1 means that there is a perfect negative linear relationship between variables. The scatterplot shown to the right depicts a negative relationship. It is a negative relationship because high scores on the X-axis are associated with low scores on the Y-axis. A correlation of 0 means there is no linear relationship between the two variables.

The second graph shows a Pearson correlation of 0.

Correlations are rarely if ever 0, 1, or -1. Some real data showing a moderately high correlation are shown on the next page.

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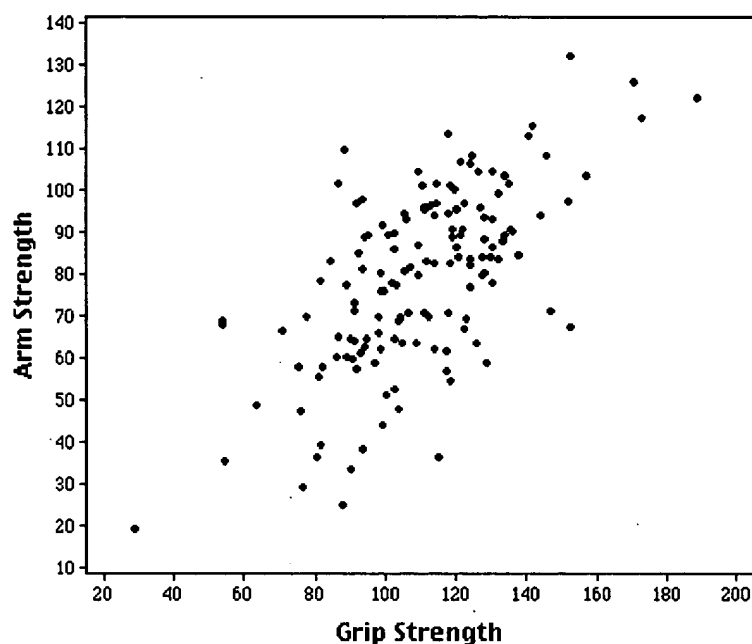**Printed version of HyperStat
is available from Amazon.**

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Pearson's correlation (3 of 3)

Next section: Computational formula

The scatterplot below shows arm strength as a function of grip strength for 147 people working in physically-demanding jobs (click here for details about the study).The plot reveals a strong positive relationship. The value of Pearson's correlation is 0.63.

Other information about Pearson's correlation can be obtained by clicking one of the following links:

- Computational formula
- Sampling distribution
- Confidence interval
- Confidence interval on difference between r's

Next section: Computational formula

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An excellent and easy-to-understand introduction

to biostatistics. Amazon Review: "Where this book is especially valuable is in keeping things simple -- without the intimidating mathematical notation."